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Lt. General J. D. O'Connell  
 Chief Signal Officer  
 Department of the Army  
 Washington 25, D. C.

Dear Jimmy:

My office has a long-standing requirement for a small battery which can be recharged with a minimum of effort after long periods of disuse. The research engineers at the [redacted] have devised a photogalvanic battery which appears to be rechargeable merely by exposure to sunlight, and the Company has approached your engineers at USASRD, as well as my office, with a request for sponsorship of further study. [redacted] estimates that a one-year \$100,000 program will bring this battery to the laboratory prototype stage.

Informal conversations with Mr. David Linden of the Power Sources Division at Ft. Monmouth have encouraged my engineers to believe that a joint program to develop such a battery would be to our mutual benefit, since the Army's requirements in this field are quite similar to ours.

I would appreciate your views regarding a joint program effected either through two separately sponsored phases, [redacted]

Sincerely,

Distr R&D Subj File  
 OC-E Chrono  
 R&D Chrono  
 EP Chrono

[redacted]  
 Director of Communications

OC-E/R&D-EP/WJS:mjr (13 Jan 59)  
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December 23, 1958

TECHNICAL GUIDELINES

PHOTO GALVANIC CELL RESEARCH

1. These technical guidelines cover research investigations on photogalvanic cell systems such as  $\text{Ag}/\text{FeCl}_3\text{aq.}/\text{Pt,Ag}$ . These investigations shall include:

a. The study of the reactions occurring in photogalvanic cell systems and the evaluation of the potentialities of these systems for the efficient conversion of solar and nuclear energy into electronic energy.

b. Investigations into the mechanisms of the electrode reactions, their rates as a function of the intensity of the incident radiation and their spectral sensitivity.

c. Studies of the electrode potentials and their dependence upon light intensity, wavelength, current drain and other operating conditions.

d. Exploration of other photochemical, radiochemical and supplementary electrochemical reactions and eventual selection of the most suitable photo- and nuclear-galvanic electrodes resulting from these investigations.

e. The use of these electrodes in the construction of experimental cells and the subsequent testing of the cells with respect to their electrical characteristics under various operational conditions.

2. The Contractor shall conduct other pertinent studies as mutually agreed upon by the Contractor and the Contracting Officer or his authorized representatives.

Prepared by the Power Sources Division,  
U.S.A. Signal Research and Development Laboratories  
Fort Monmouth, New Jersey

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